

REMARKS

I. Summary of the Examiner's Action

A. Claim Rejections

In paragraph 2 of the Office Action, the Examiner rejected claims 1 – 27 under 35 U.S.C. § 102(b) as being anticipated by United States Patent No. 5,802,110 to Watanabe *et al.* (hereinafter “the Watanabe patent”).

This rejection is respectfully disagreed with, and traversed below.

II. Applicants' Response – Claim Rejections

A. Rejection of Claims 1 – 27 under 35 U.S.C. § 102(b)

1. Applicants' Invention

Before discussing the Examiner's rejections, Applicants present the following description of their invention and the problems it has solved. Applicants respectfully believe that once Applicants' invention is understood, it will be seen that the Watanabe patent neither describes nor suggests Applicants' invention.

Applicants' invention relates generally to wireless communications systems, and more particularly concerns problems encountered in such wireless communications systems. Applicants made the observation that “cellular and fixed wireless access air-interfaces typically use different waveforms in the forward and reverse links.”

Application, Page 1, lines 14 – 15. The fact that the forward and reverse links use different waveforms has negative consequences:

Since systems having a cellular-like point-to-multipoint architecture always have many more subscriber stations than base stations, it is generally economically justifiable to develop custom ASICs for the subscriber stations to reduce their cost. In contrast, ASIC developments are generally too expensive to be viable for base stations. As a result, when different waveforms are used in the forward and reverse links, base stations often must employ more expensive programmable gate arrays rather than lower-cost custom ASICs.

Application, Page 1, lines 23 – 29.

Applicants realized this, and proposed that a common waveform be used on both the forward and reverse links. In an embodiment of Applicants' invention

Each CDMA channel is preferably coded independently. Independent coding of CDMA channels furthers the symmetry of the upstream and downstream waveform and enables a similar time-slot structure on each CDMA channel. The upstream and downstream waveform symmetry aids in cost reduction, as the SS10 and BS11 baseband hardware can be identical. The independent coding of each S-CDMA/FDMA channel is an important distinction between this approach and other multi-carrier CDMA schemes.

Application, Page 9, lines 15 – 21.

2. Examiner's Rejections

Claim 1 recites the following subject matter (emphasis added):

1. A method for operating a communication system having subscriber stations (SSs) and at least one base station (BS), comprising the steps of:

arranging a forward link and a reverse link to operate with a common waveform, the forward link operating at a first frequency that is transmitted by the BS and received by the SS, and the reverse link operating at a second frequency that is transmitted by the SS and received by the BS; and

using common forward link and reverse link signal processing circuitry in the BS and individual ones of the SSs.

When considered in light of the foregoing description of Applicants' invention and the problems both recognized by Applicants and overcome by Applicants' invention, it is not seen where the Watanabe patent shows any appreciation of these issues. Applicants respectfully submit that the Watanabe patent neither describes nor suggests the emphasized subject matter in claim 1 reproduced above. For that reason, Applicants respectfully request that the Examiner withdraw the rejection of claim 1. Since claims 1 and 14 recite similar subject matter, Applicants also respectfully request that the Examiner withdraw the rejection of claim 14 for those reasons recited with respect to claim 1.

Applicants respectfully submit the following additional remarks regarding the dependent claims.

Regarding the rejection of claims 2 and 15, it is not seen where the subject matter of these claims is either described or suggested in the portions of the Watanabe patent relied on by the Examiner. In particular, claim 2 recites a “method as in claim 1 . . . further comprising a step of providing switching circuitry for cross-connecting RF signal paths for enabling one of said SSs to function as a BS by transmitting on the first frequency and receiving on the second frequency” (emphasis added). This feature of Applicants’ invention is described here:

The switching circuitry for cross-connecting RF signal paths enables an SS to function as a BS by transmitting on the first frequency and receiving on the second frequency, where the SS functions as one of a point-to-multipoint pseudo-BS for at least transmitting signals to a plurality of other SSs, or as a point-to-point pseudo-BS for transmitting signals to and receiving signals from another SS.

Application, Page 2, lines 18 – 22. It is not seen where the Watanabe patent shows any appreciation for this mode of operation. The portions of the Watanabe patent relied upon by the Examiner refer to the frequency hopping scheme disclosed in the Watanabe patent, where the mobile and base stations alternate between transmitting and receiving in two frequency bands (see FIG. 6 and accompanying description). There is no description, however, of a subscriber station switching to operate as a base station as recited and claimed in claims 2 and 15.

Regarding the rejection of claims 3 and 16, claim 3 recites the following subject matter: "a method as in claim 1, wherein said common waveform enables essential parameters of the forward and the reverse link to be the same." It is not seen where in the portions of the Watanabe patent cited by the Examiner there is either a description or suggestion that the "common waveform enables essential parameters of the forward and the reverse links to be the same."

Regarding claims 4 – 13 and 17 – 26, Applicants respectfully submit that since there is neither description nor suggestion in the Watanabe patent that the essential parameters of the forward and reverse links are the same as recited in claims 3 and 16, instances of essential parameters as recited in claims 4 – 13 and 17 – 26 are additionally neither described nor suggested by the Watanabe patent. If the Examiner disagrees, Applicants respectfully request that the Examiner identify with particularity where each of the essential parameters recited in claims 4 – 13 and 17 – 27 appear in the portions of the Watanabe patent identified by the Examiner. Applicants note that in paragraphs 6 – 13 of the Office Action dated December 8, 2004 the Examiner has identified where other subject matter purportedly appears but, for the most part, the Examiner has not identified where the claimed subject matter appears. Applicants remind the Examiner that each and every claim limitation needs to be found in the reference in order to support an anticipation rejection.

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Regarding independent claim 27, Applicants respectfully submit that claim 27 is patentable for the same reasons as claims 1, 2, 14 and 15.

III. Conclusion

The Applicant submits that in light of the foregoing remarks the application is now in condition for allowance. Applicant therefore respectfully requests that the outstanding rejections be withdrawn and that the case be passed to issuance.

Respectfully submitted,

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Date

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April 14, 2005

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